



THE UNIVERSITY OF NEW MEXICO ♦ HEALTH SCIENCES CENTER

## COLLEGE OF PHARMACY

2502 Marble NE  
Albuquerque, New Mexico 87131-5691  
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September 18, 2000

Docket No. 00N-0930  
Dockets Management Branch (HFA-358)  
Food and Drug Administration  
5630 Fishers Lane Rm 1061  
Rockville, MD 20852

Dear Sir or Madam:

I am writing in response to the request for nominations for Working Groups to advise the FDA Nonclinical Sciences Subcommittee of the Advisory Committee for Pharmaceutical Science.

I would be very interested in serving on the vasculitis and biomarkers Working Group. I am a full Professor of Pharmacology, Toxicology, and Immunology at the University of New Mexico, where I also serve on the VP for Health Science's Research Council and as Associate Dean for Research in the UNM College of Pharmacy. I have over 20 yrs of experience in academia and in private consulting with pharmaceutical and biotech industry in the areas of drug development and nonclinical (preclinical) evaluation of pharmaceuticals and devices. I also have a specialty in the area of immunopharmacology and immunotoxicology and am past president of the Immunotoxicology Specialty Section of the Society of Toxicology. Mechanisms of immunotoxicity may be highly relevant to vasculitis. My specific expertise in signaling, apoptosis, and cell growth regulation are especially relevant. I have several current research projects in the areas of genomics and proteomics, and have recently started a collaboration in the area of vasculitis.

I have attached a full c.v. demonstrating my diverse and multidisciplinary experiences in peer-review research, publication, and service of numerous public and U.S. government advisory Committees, including membership on several NIH study sections and expert panels. I believe that my experiences will qualify me to serve with distinction on the vasculitis Working Group to assist in the identification of molecular biomarkers.

Thank you very much for your consideration.

Sincerely,

Scott W. Burchiel, Ph.D.  
Professor and Associate Dean for Research  
(505) 272-0920 (505) 272-6749 (FAX)  
[sburchiel@salud.unm.edu](mailto:sburchiel@salud.unm.edu)

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**SCOTT WILLIAM BURCHIEL, PH.D.**  
**CURRICULUM VITAE**  
**SEPTEMBER, 2000**

**PROFESSIONAL ADDRESS**

College of Pharmacy - Toxicology Program  
The University of New Mexico Health Sciences Center  
2502 Marble, NE  
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**ACADEMIC AND PROFESSIONAL INFORMATION**

**Education and Experience**

9/69 - 6/73: University of California at Davis; B.S. in Biochemistry  
9/73 - 4/75: University of California at Davis; Advanced to Candidacy in Pharmacology and Toxicology  
4/75 - 6/77: University of California at San Francisco School of Medicine; Ph.D. in Pharmacology  
6/77 - 9/78: Postdoctoral Fellow, National Cancer Institute NRSA, The University of New Mexico  
School of Medicine, Department of Pathology (Immunobiology Laboratory)

**Positions**

3/91 - Date: The University of New Mexico College of Pharmacy, Associate Dean for Research, 7/98 (Assistant Dean for Graduate Programs and Research 3/91-6/98); Professor (Pharmacology, Toxicology, and Immunology); Member, UNM Cancer Research and Treatment Center; Adjunct Professor of Biochemistry and Molecular Biology, UNM SOM (9/97); Adjunct Scientist and Director of University Relations, Lovelace Respiratory Research Institute (LRRI) (2/00 to date)  
7/88-3/91: The University of New Mexico College of Pharmacy, Professor (Pharmacology, Toxicology, and Immunology); Member, UNM Cancer Research and Treatment Center  
6/89 -8/89: Visiting Professor, The University of Arizona College of Medicine, Dept. of Microbiology and Immunology, Tucson, AZ  
7/83-6/88: The University of New Mexico College of Pharmacy, Associate Professor, (Pharmacology, Toxicology, and Immunology) [tenured 7/85]; Research Assistant Professor of Pathology UNM School of Medicine; Director of Research, Radiopharmacy  
6/79 - 6/83: The University of New Mexico College of Pharmacy, Assistant Professor, (Pharmacology and Immunology); UNM School of Medicine, Dept. of Pathology, Research Assistant Professor

**1/79 - 6/79: The University of New Mexico College of Pharmacy, Research Assistant Professor  
and Instructor; UNM SOM, Dept of Pathology, Research Assistant Professor**

**Positions (Con't)**

9/78 - 1/79: Research Assistant Professor, The University of New Mexico College of Pharmacy  
7/77 - 9/78: Senior Research Associate, UNM School of Medicine, Immunobiology Laboratory  
4/75 - 6/77: NIH Predoctoral Research Fellow of the Cardiovascular Research Institute, U.C. San Francisco School of Medicine, Division of Clinical Pharmacology  
7/73 - 4/75: Research Technologist, U. C. Davis School of Medicine, Dept. of Pharmacology, National Primate Research Center  
1/70 - 6/73: Work Study Student, U.C. Davis, Dept. of Biochemistry

**SOCIETIES AND ORGANIZATIONS**

American Association for the Advancement of Science (1975-date)  
American Association for Cancer Research (1995-date)  
American Association of Colleges of Pharmacy (1980-date)  
American Association of Immunologists (1985-date)  
Christian Medical Society (1974-77)  
International Society of Immunopharmacology (1978-date)  
International Society for the Study of Xenobiotics (1993-date)  
Mountain West Society of Toxicology (Counselor, 1994-97)  
National Geographic Society (1979-date)  
Rocky Mountain Society of Nuclear Medicine (1980-92)  
Society of Nuclear Medicine (1980-92)  
Society for Analytical Cytology (1980-date)  
Society of Toxicology (1985-date)  
Western Pharmacology Society (1978-80)  
New Mexico Biotechnology and Biomedical Association (1999-date)

**HONORS, AWARDS, PROFESSIONAL ACTIVITIES**

American Legion Good Citizenship Award (1969)  
Rotary Scholarship (1969-1970)  
California State Scholarship (1969-1973)  
Chancellor's Research Fellowship - U.C. Davis (1974)  
Graduate Student Assoc. Research Award-U.C. San Francisco (1977)  
Rho Chi Pharmaceutical Honor Society (1986)  
UNM Presidential Lectureship (1986-88)  
Pharmaceutical Manufacturer's Association Drug Safety (DRUSAFE) Committee  
Biotechnology Task Force (1986-88)  
Visiting Scientist at the Sandoz Research Institute (Basel, SWITZERLAND), 5/87-6/87  
College of Pharmacy Teacher of the Year 1991-92; 1993-94  
President, Society of Toxicology, Immunotoxicology Specialty Section (1997)  
Member, Society of Toxicology, Committee on Public Communications (1998-2001)  
Society of Toxicology Media Resource Specialist (Immunotoxicology, Biotechnology and Biopharmaceutical Toxicology, Medical Devices (1999-date)  
Society of Toxicology, Member Nominating Committee (2000-2003)

**RESEARCH EXPERIENCE**

9/70 - 6/73: Regulation of sulfate metabolism and characterization of bacterial sulfatases

8/73 - 2/74: Effects of psychoactive drugs on the brain with special emphasis on EEG and behavioral correlates

2/74 - 4/75: Effects of narcotic agonists and antagonists on the self-administration behavior in Rhesus monkeys

4/75 - 8/77: The modulation of the *in vitro* humoral immune response by pharmacologic agents. Emphasis on the role of cyclic AMP in immune regulation and the immunopharmacology of adenylate cyclase activating agents

8/77 - 9/78: Effects of pharmacologic agents on murine tumors; prostaglandin production by murine tumors; modulation of Fc receptor expression by drugs; hormone receptors of the adenylate cyclase system on murine lymphomas; quantitative fluorescence analysis of macrophage phagocytosis using flow cytometry at the Los Alamos National Laboratories; change in phenotypic expression of murine tumors produced by pharmacologic agents

9/78 - 1/84: Radioimmunochemical localization of cancer; pharmacologic regulation of lymphocyte activation; the effects of prostaglandins on the immune response and cyclic AMP; expression and secretion of human chorionic gonadotropin by human tumors; hormone receptors on murine lymphomas; analysis of tumor markers using monoclonal antibodies and flow cytometry

1/84 -Date: Radiolabeled antibody imaging, quantitation and pharmacokinetic modeling in Rhesus monkeys; monoclonal antibody production, characterization, and immunochemistry; effects of toxic agents on the immune system; flow cytometry analysis of immunotoxicity; preclinical evaluation of human rDNA-derived cytokines; enzyme immunoassay and radioreceptor assay development

6/89 -Date: Molecular biology of lymphocyte T cell receptors (TCR), gene cloning in lambda gt11 and sequencing in M13 vectors, cDNA library screening with antibody and cDNA probes; lymphocyte activation and signal transduction mechanisms

6/93-date: Mechanisms of signaling in human mammary epithelial cells (HMEC); HMEC cell culture, confocal imaging; proto-oncogene activation, RT-PCR for gene expression

**TEACHING EXPERIENCE**

Biochemistry of the Brain: A course taught at U.C. Berkeley on the fundamentals of neurophysiology, neurochemistry, and neuropharmacology (1977)

The Pharmacology of Drug Abuse: A course on drug education taught to prisoners at the State Penitentiary of New Mexico (1978)

Pharmacy 475/731: Second of three semesters of pharmacology taught at UNM College of Pharmacy on autonomic, autacoids, cardiovascular, and renal pharmacology

Pharmacy 476: Third of three semesters of pharmacology taught in the UNM College of Pharmacy on neuropharmacology and endocrine pharmacology

**TEACHING EXPERIENCE (Con't)**

Pharmacy 302/402/714: Immunology for Pharmacy: Basic introduction to immunology for pharmacy students in the UNM College of Pharmacy and graduate students, including immunochemistry, humoral and cellular immunology, immunopathology, and basics of immunopharmacology.

Pharmacy 477/577: Elective taught in the UNM College of Pharmacy in immunopharmacology, immunoassays, and immunotoxicology (1979-84, replaced with Pharmacy 577 in 1985)

Pharmacy 480/580: General Toxicology I: graduate lectures in hematotoxicology and immunotoxicology

Pharmacy 577/578L: Immunotoxicology, graduate course with laboratory

**POST DOCS**

Anita Letter, Ph.D. (1987-88)

DeAnn Davis, Ph.D. (1990-1992) - Society of Toxicology Immunotoxicology Award for Post-Docs; NRSA Post Doctoral Fellow of NIEHS

Sidhartha Ray, Ph.D. (1992)

Donna R. Davila Ph.D. (1992-1996)

Tom Carpenter, DVM, Ph.D. (1995)

Virginia Salas, Ph.D. (1996-1998)

Matthew Reed, Ph.D. (1998-1999)

John W. Davis II, Ph.D. (1999-date)

**GRADUATE STUDENTS**

Marisela P. Gomez, M.S. (1990) - New Mexico Opportunity Graduate Fellow

John A. Finney, M.S. (1990)

Melecita M. Archuleta, Ph.D. (1992) - New Mexico GFA Graduate Fellow; winner of Society of Toxicology (SOT) Procter and Gamble Award, SOT Immunotoxicology Award, Ford Foundation Fellow

Wenjie Yuan, M.S. (1993)

Jim Krieger, Ph.D. (1994)

Meifen Zhao, M.S. (1995)

Wei-Min Hua, M.S. (1996)

Barbara Mounho, Ph.D. (1997) - MWSOT Best Platform Presentation, 1996

David Romero, M.S. (1996) - NIH Minority Research Fellowship

Stacey Tannheimer, Ph.D. (1997)

Drew Burdick (1999-date)

**UNIVERSITY COMMITTEES**

UNM Research Policy Committee (1979-81); Chair, Patents and Copyrights Subcommittee (1981)

UNM COP Part-Time Faculty Appointments Committee (1981-86)

UNM Long Range Planning Committee (1982-83)

UNM Community Education Committee (1984-85)

UNM Research Policy Committee (1984-87)

UNM COP Graduate Studies Committee (1984-87; Chair, 1990-date)

UNM COP Equipment Committee (1984 -date)

UNM COP Research and Service Allocations and Policy Committee (Chair 1984-90)

**UNIVERSITY COMMITTEES (con't)**

UNM COP Curriculum Committee (1986-88)  
 UNM COP Promotion and Tenure Committee (1986-date)  
 UNM COP Pharm.D. Research Committee (1998-date)  
 UNM Medical Center Animal Care and Use Committee (1986-1991)  
 UNM Curricula Committee (1987-88)  
 UNM Strategic Planning Committee (1988-89)  
 UNM Faculty Senate Graduate Committee (1990-date); Chair, Subcommittee for Graduate Program Review Assessment (1990, 1992)  
 UNM Honorary Degrees Committee (1990-1992)  
 UNM Health Sciences Center Research Council (1999-date)  
 UNM School of Medicine Scientific Advisory Council (1999-date)  
 UNM Cancer Center – Cancer Alliance Task Force (1999-date)

**PUBLIC ADVISORY GROUPS AND COMMITTEES**

NIH Ad Hoc Study Section, NCI Diagnostic Imaging Program Project Review, December, 1983  
 NIH Site Visit Team to Yale University (New Haven, CT), NCI Program Project Grant Cancer Detection and Therapy, June, 1984  
 NIH Site Visit Team to Memorial Sloan Kettering Cancer Institute (New York, NY), NCI Program Project Grant, Cancer Detection and Therapy, March, 1985  
 NIH Site Visit Team to Duke University School of Medicine and Cancer Center (Durham, NC), NCI Program Project Grant, November, 1985  
 NIH Site Visit Team to The City of Hope Cancer Center (Duarte, CA), NCI Program Project Grant, May, 1986  
 NIH Site Visit Team, Biologic Response Modifiers Program, The Johns Hopkins University Cancer Center (Baltimore, PA), NCI Program Project Grant, June, 1986  
 NIH Correspondent Reviewer, NCI Program Project Grant at The City of Hope Cancer Center, Duarte, CA, May, 1987  
 NIH Ad Hoc Review Panel for RFP on "Immunotoxicity of New AIDS Therapeutics" at NIEHS, Research Triangle Park, NC, October, 1988  
 Oregon State University, External Reviewer for the Environmental Health Sciences Center, Corvallis, OR, February, 1989  
 NIH Pharmacology Special Study Section Member (Bethesda, MD), October, 1989  
 NCI Physician Scientist and Clinical Investigator Special Study Section Reviewer (Bethesda, MD), March, 1990  
 NIH Site Visit Team, NCI Program Project Grant at the University of Chicago Cancer Center, March, 1990.  
 NIH Occupational Safety and Health (NIOSH) Special Study Member (Bethesda, MD), June, 1990  
 NIH Site Visit Team to The Center for Molecular Medicine and Immunology (Newark, NJ), NCI Program Project Grant, December, 1990  
 NIH Site Visit Team to The City of Hope Cancer Center (Duarte, CA), NCI Program Project Grant, August, 1991  
 NCI Special Study Section Member, Breast Cancer SPORE Grants (1992)  
 NIEHS, Program Project Grants Special Study Section Member, March, 1995  
 NCI, Site Visit Team, Center for Molecular Medicine and Immunology (Newark, NJ) May, 1995  
 NIEHS, Toxicology I Study Section, Committee Member (Reviewer's Reserve) (1995-date)  
 NIEHS, Special RFA Toxicology Study Section, Endocrine Disruptors, 3/96  
 NIH, ALTX-2 Study Section Member, 1995-96

### **PUBLIC ADVISORY GROUPS AND COMMITTEES (con't)**

NIEHS, Environmental Health Sciences Review Committee (1996-2000) - reviews all NIEHS Center Grants, Program Grants, and Training Grants with numerous site visits to institutions

NIEHS EPA Superfund Review Committee (1999)

Food and Drug Administration, Center for Drug Evaluation and Research (CDER), Office of Testing and Research, Non-Clinical Studies Subcommittee, Biomarkers Working Group (1999-date)

City of Albuquerque Mayor's Task Force NEXT Generation Initiative – Biotechnology Cluster (1999-date)

### **JOURNAL EDITORIAL REVIEW BOARDS**

Fundamental and Applied Toxicology (1988-1994)

Journal of Nuclear Medicine (1989)

Toxicology and Applied Pharmacology (1996-1999; 1999-2002)

### **AD HOC REVIEWER FOR THE FOLLOWING JOURNALS**

American Journal of Pharmaceutical Education

Analytical Biochemistry

BioChromatography

Environmental Perspectives

Fundamental and Applied Toxicology

Immunopharmacology

International Journal of Immunopharmacology

Journal of Chromatography

Journal of Clinical Investigation

Journal of Immunological Methods

Journal of Immunology

Journal of Leukocyte Biology

Journal of Nuclear Medicine

Journal of Pharmacology and Experimental Therapeutics

Journal of Toxicology and Environmental Health

Life Sciences

Molecular Pharmacology

Toxicology and Applied Pharmacology

Toxicological Sciences

Tox Letters

### **SCIENTIFIC MEETINGS AND INVITED PRESENTATIONS**

Western Pharmacology Society Davis, California - January, 1975, Mid-Winter Conference of Immunologists

Asilomar, California - January, 1976

ICN-UCLA Molecular Biology and Immunology Symposium - "A Possible Mechanism of Stimulation of Humoral Immunity by Cyclic AMP"

Park City, Utah - March, 1977

University of New Mexico Immunobiology Laboratories - "The Role of Cyclic AMP in Immunoregulation"

Albuquerque, New Mexico - May, 1977



**SCIENTIFIC MEETINGS AND INVITED PRESENTATIONS (con't)**

Tenth Miami Winter Symposia on Differentiation and Development - "Change in Phenotypic Expression Induced by Cyclic AMP in Differentiation-Arrested Murine Lymphomas"  
Miami, Florida - January, 1976

Rocky Mountain Immunology Society - "Analysis of Differentiation-Arrested Murine Lymphomas"  
Pingree Park, Colorado - March, 1978

University of Colorado School of Medicine - "Expression of hCG by Human Tumors"  
Denver, Colorado - November, 1978

University of California Symposium on Tumor Markers - "Prostaglandin Production by Murine Tumors"  
Berkeley, California - December, 1978

Mid-Winter Conference of Immunology - "Regulation of Fc Receptor Expression on Murine Lymphomas"  
Asilomar, California - January, 1979

Twelfth Annual Arthritis Symposium - "The Role of Prostaglandins in Inflammation and Immunity"  
Albuquerque, New Mexico - March, 1979

First Annual Radioimmunoimaging Symposium - "The Use of Tc-99m Labeled Anti-hCG Antibodies for *In Vivo* Imaging"  
Albuquerque, New Mexico - November, 1979

Dow Chemical Immunodiagnostic Division - "Detection of Cell Phagocytosis Using Fluorescent Microspheres and Quantitative Flow Cytometry"  
Indianapolis, Indiana - November, 1979

Memorial Sloan-Kettering Cancer Research Center - "The use of Radiolabeled Anti-hCG Antibodies for Tumor Imaging"  
New York, New York - January, 1980

Columbia University College of Physicians and Surgeons - "Expression and Detection of hCG in Human Malignancy"  
New York, New York - February, 1980

Scripps Clinic and Research Foundation - "Potential Use of Murine Monoclonal Antibodies for *In Vivo* Tumor Imaging"  
La Jolla, California - March, 1980

Hybritech, Inc. - "Current Status of Radiolabeled Anti-hCG for *In Vivo* Tumor Imaging"  
La Jolla, California - March, 1980

Vancouver General Hospital Nuclear Medicine - "Purification and Characterization of Affinity Purified Anti-hCG Antibodies"  
Vancouver, B.C. CANADA - April, 1980

**SCIENTIFIC MEETINGS AND INVITED PRESENTATIONS (Con't)**

Istituto Farmacologico Sersono-"Progress Report on the Use of Anti-hCG Antibodies for Tumor Imaging"  
Rome, ITALY - May, 1980

First International Congress of Immunopharmacology - "Characterization of Adenylate Cyclase-linked  
Cell Surface Receptors on Murine Lymphomas"  
Brighton, ENGLAND - August, 1980

Prostaglandins, Platelets, and Salicylates Symposium - "The Role of Prostaglandins in Immunoregulation  
and Cancer"  
New Orleans, Louisiana - October, 1980

NIH Workshop on Diagnostic and Therapeutic Use of Monoclonal Antibodies - "Heterogeneous  
Expression of Human Melanoma Associated Antigens on Melanoma Cell Lines"  
Bethesda, Maryland - February, 1981

Becton Dickinson, Inc., Monoclonal Antibody and FACS Division - "Current Status of *In Vivo* Tumor  
Imaging with Radiolabeled Antibodies"  
Mountain View, California - May, 1981

Johnson and Johnson, Office of Science and Technology and Ortho Pharmaceuticals - "Status and Future  
Use of Radiolabeled Antibodies"  
Raritan, New Jersey - May, 1981

E. R. Squibb, Inc., Radiopharmaceutical Division - "Tc-99m Labeled Anti-hCG Antibodies for  
Radioimmunoimaging"  
New Brunswick, New Jersey - May, 1981

Biotechnology Conference Organized by Robert S. First, Inc.  
Tarrytown, New York - June, 1981

Dalhousie University School of Medicine - "Use of Tc-99m Labeled Murine Monoclonal Antibodies for  
Imaging Human Melanoma in Nude Mice"  
Halifax, Nova Scotia, CANADA - June, 1981

Engineering Foundation's Diagnostic Immunology III Conference-"Use of Radiolabeled Antibodies for  
Tumor Imaging"  
Henniker, New Hampshire - August, 1981

Vancouver General Hospital, Dept. of Nuclear Medicine - "Availability of Murine Monoclonal  
Antibodies for *In Vivo* Tumor Imaging"  
Vancouver, B.C. CANADA - August, 1981

Western Pharmacology Society - "Biodistribution of Radiolabeled Antibodies and Their Fragments"  
Santa Fe, New Mexico - January, 1982

Wampole Laboratories, Inc. - "New Insights on the Use of Anti-hCG Antibodies for *In Vivo* Imaging and  
Immunohistopathology"  
Cranbury, New Jersey - March, 1982

**SCIENTIFIC MEETINGS AND INVITED PRESENTATIONS (Con't)**

Second International Congress of Immunopharmacology - "Modulation of Fc Receptor Expression on a Murine Pre-B Lymphoma"  
Washington, D.C. - July, 1982

Serono Laboratories, Inc. - "Studies on Immunodetection of hCG-like Molecules on the Surface of Human Cancers"  
Boston, Massachusetts - July, 1982

Third World Congress of Nuclear Medicine and Biology - "Characterization and Detection of Human Melanoma Associated Antigens Using Tc-99m Labeled Monoclonal Antibodies"  
Paris, FRANCE - August, 1982

Saint Bartholomew's Hospital, Dept. of Pathology/Immunology - "New Approaches to Radioimmunoimaging with Radiolabeled Anti-hCG Antibodies"  
London, ENGLAND - August, 1982

Second International Conference on Radioimmunoimaging - "Characterization and Detection of Human Tumor Associated Antigens"  
Albuquerque, New Mexico - November, 1982

The Johns Hopkins University, Department of Nuclear Medicine - "Radioimmunoimaging of Cancer: Clinical Studies"  
Baltimore, Maryland - March, 1983

National Institutes of Health, Tumor Immunology and Biology Section - "Radioimmunoimaging of Tc-99m Labeled Mouse Monoclonal Antibodies"  
Bethesda, Maryland - March, 1983

Seventh Annual Meeting of The Cell Kinetics Society - "Heterogeneous Expression of Melanoma Associated Antigens on Tumor Cells Detected Using Monoclonal Antibodies and Flow Cytometry"  
Baltimore, Maryland - March, 1983

BTC Diagnostics - "Use of HPLC for Isolation and Characterization of Monoclonal Antibodies"  
Cambridge, Massachusetts - June, 1983

Massachusetts General Hospital, Department of Nuclear Medicine - "Clinical Study of Radiolabeled Anti-hCG Antibodies"  
Boston, Massachusetts - June, 1983

American Society of Hospital Pharmacists Annual Meeting - "Monoclonal Antibodies in Disease and Diagnosis"  
Atlanta, Georgia - December, 1983

E.I. du Pont de Nemours - "Modeling of Radiolabeled Antibody Behavior in Rhesus Monkeys" Boston, Massachusetts - July, 1984

Society of Toxicology 24th Annual Meeting - "Lead and Cadmium-Induced Alterations in Murine Bone Marrow Detected Using Multiparameter Flow Cytometry"  
San Diego, California - March, 1985

**SCIENTIFIC MEETINGS AND INVITED PRESENTATIONS (Con't)**

Eli Lilly and Company - "Use of Murine Monoclonal Antibodies for *In Vivo* Tumor Imaging and Immunotherapy"

Indianapolis, Indiana - June, 1985

Chemical Industry Institute of Toxicology (CIIT) - "Analysis of Heavy Metal Immunotoxicity by Flow Cytometry and Functional Assays"

Research Triangle Park, North Carolina - June, 1985

National Institute of Environmental Health Sciences, Immunotoxicology Laboratory - "Correlation of Flow Cytometry and Immune Function Data for the Assessment of Murine Immunotoxicity"

Research Triangle Park, North Carolina - November, 1985

E.I. du Pont de Nemours - "Biodistribution, Pharmacokinetic Analysis, and Immunogenicity of Tc-99m Metallothionein Conjugated Mouse Monoclonal Antibodies in Rhesus Monkeys"

North Billerica, Massachusetts - January, 1986

Society of Toxicology 25th Annual Meeting - "Comparison of Multiparameter Flow Cytometry and Functional Assays for the Assessment of 7,12 Dimethylbenz(a)anthracene Immunotoxicity in B6C3F1 Mice"

New Orleans, Louisiana - March, 1986

Society of Nuclear Medicine 33rd Annual Meeting - "Biodistribution and Pharmacokinetic Analyses of Tc<sup>99m</sup>-Metallothionein Conjugated B72.3 Antibodies in Rhesus Monkeys"

Washington, D.C. - June, 1986

Sandoz Research Institute - "Preclinical Evaluation of Human rDNA-Derived Proteins and other Biotechnology Products"

East Hanover, New Jersey - September, 1986

Society of Toxicology 26th Annual Meeting - "Immunogenicity of CHO Cell-Derived rDNA Human GM-CSF in Rhesus Monkeys" and "Inhibition of Induction of IL-2 Receptor Expression by DMBA Detected Using Flow Cytometry"

Washington, D.C. - February, 1987

Basel Institute of Immunology - "Analysis of Immunotoxicity of DMBA"

Basel, SWITZERLAND - May, 1987

Sandoz Research Institute, Immunology Division - "Immunogenicity of Human rDNA-Derived GM-CSF in Rhesus Monkeys"

Basel, SWITZERLAND - June, 1987

Sandoz Research Institute, Toxicology Division - "Analysis of Immunotoxicity by Multiparameter Flow Cytometry and Functional Assays"

Muttenz, SWITZERLAND - June, 1987

Sandoz Research Institute, Preclinical Safety Assessment - "Use of Flow Cytometry for Immunotoxicology Studies"

East Hanover, New Jersey - September, 1987

#### **SCIENTIFIC MEETINGS AND INVITED PRESENTATIONS (Con't)**

Mountain West Society of Toxicology - "Mechanisms of DMBA-Induced Immunotoxicity"

Boulder, Colorado - October, 1987

Society of Toxicology 27th Annual Meeting - "Modulation of PHA-Induced T-Cell Calcium Mobilization by DMBA"  
Dallas, Texas - February, 1988

Sandoz Biopharmaceutics (BIOP) Group - "Pharmacokinetic Analysis of Human rGM-CSF in Rhesus Monkeys"  
Basel, SWITZERLAND - March, 1988

Merck Research Laboratories, Preclinical Safety Assessment - "Immunopharmacologic Evaluation of Biotechnology-Derived Products in Non-Human Primates"  
West Point, Pennsylvania - March, 1988

Mountain West Society of Toxicology - "Analysis of rHuGM-CSF Biodistribution by Non-invasive Gamma Scintigraphy"  
Salt Lake City, Utah - September, 1988

Duke University School of Medicine, Bone Marrow Transplantation Unit - "Biodistribution of Radiolabeled rHuGM-CSF in the Rhesus Monkey"  
Durham, North Carolina - October, 1988

University of Arizona Cancer Center - "Immunopharmacologic Evaluation of rHuGM-CSF in the Rhesus Monkey"  
Tucson, Arizona - October, 1988

NIEHS Workshop on Quantification of Risk in Immunotoxicity, Invited Participant and Discussant,  
Research Triangle Park, North Carolina - December, 1988

Immunotoxicology Discussion Group's Meeting on Safety Assessment of Cytokines, Featured Speaker,  
"Preclinical Evaluation of rHuGM-CSF in the Rhesus Monkey: Pharmacokinetics, Biodistribution, and Immunogenicity"  
Bethesda, Maryland - May, 1989

Genentech, Inc. - "Non-invasive Analysis of Protein Biodistribution in Primates Using Gamma Scintigraphy"  
South San Francisco, California - September, 1989

Mountain West Society of Toxicology - "Immunotoxicity of 7,12-Dimethylbenz(a)anthracene (DMBA)"  
Albuquerque, New Mexico - October, 1989

Society of Toxicology 29th Annual Meeting - "Local Gut-Associated Immunity is More Sensitive to Suppression by 7,12-Dimethylbenz(a)anthracene (DMBA) Given Orally than is Splenic Immunity in Mice."  
Miami, Florida - February, 1990

**SCIENTIFIC MEETINGS AND INVITED PRESENTATIONS (Con't)**

Cetus Corporation, Division of Pharmacology and Toxicology - "Preclinical Evaluation of rHuGM-CSF in the Rhesus Monkey"

Emeryville, California - June, 1990

Xoma Corporation, Dept. of Preclinical Science - "Factors Affecting the Biodistribution and Pharmacokinetics of Murine Monoclonal Antibodies in Rhesus Monkeys"

Berkeley, California - August, 1990

Merck, Sharpe, and Dohme Research Labs, Dept. of Immunology - "Mechanisms of Chemical Immunosuppression by 7,12-Dimethylbenz(a)anthracene"

Rahway, New Jersey - September, 1990

Mountain West Society of Toxicology - "DNA Fragmentation and Cell Death Induced by Lymphoid and Nonlymphoid Organs of B6C3F1 Mice"

Tucson, Arizona - October, 1990

Society of Toxicology 30th Annual Meeting - "DNA Fragmentation and Cell Death Induced by DMBA in Lymphoid and Nonlymphoid Organs of B6C3F1 Mice"

Dallas, Texas - February, 1991

Lawrence Livermore National Laboratory, Carcinogenesis Group - "The Immunotoxicity of Polycyclic Aromatic Hydrocarbons"

Livermore, California - June, 1991

Genetics Institute - "The Use of Gamma Scintigraphy to Analyze Protein Biodistribution and Pharmacokinetics in Rhesus Monkeys"

Cambridge, Massachusetts - December, 1991

Society of Toxicology 31st Annual Meeting - "Induction of Apoptosis-Like Cell Death by 7,12-Dimethylbenz(a)anthracene (DMBA) in the A201. Murine B Lymphoma"

Seattle, Washington - February, 1992

Oncogen, Inc. "Activation of Human *src*-Related Protein Tyrosine Kinases by DMBA in Human T Lymphocytes"

Seattle, Washington - February, 1992

University of Wisconsin School of Medicine, McArdle Laboratory for Cancer Research - "Pathways for Altered Signal Transduction and Immunosuppression Produced by PAHs in Lymphocytes"

Madison, Wisconsin - June, 1993

University of California at San Diego School of Medicine, Dept. of Pharmacology - "Induction of Apoptosis and Disruption of Ca<sup>2+</sup>-Dependent Signaling Pathways Produced by Environmental Agents"

La Jolla, California - July, 1993

University of Utah School of Pharmacy, Dept. of Pharmacology and Toxicology - "Molecular Mechanisms of Polycyclic Aromatic Hydrocarbon-Induced Immunotoxicity"

Salt Lake City, Utah - August, 1993

**SCIENTIFIC MEETINGS AND INVITED PRESENTATIONS (Con't)**

University of California at Davis, Environmental Toxicology Program - "Mechanisms of Polycyclic Aromatic Hydrocarbon Immunotoxicity"  
Davis, California - January, 1994

American Society for Pharmacology and Experimental Therapeutics, Experimental Biology '94, Symposium: Immunotoxicology - Mechanisms of Chemical Interactions with the Immune System to Produce an Adverse Response - "Mechanisms of Polycyclic Aromatic Hydrocarbon Disruption of Lymphocyte Activation"  
Anaheim, California - April, 1994

University of Wisconsin School of Medicine, McArdle Laboratory for Cancer Research - "Alterations in  $Ca^{2+}$ -Dependent Signaling Pathways in Lymphoid and Non-Lymphoid Cells by PAHs: Potential Applications to Immunotoxicity and Human Breast Cancer"  
Madison, Wisconsin - June, 1994

Wayne State University, Institute of Chemical Toxicology - "The Role of Altered Calcium Homeostasis in the Immunotoxicity of Polycyclic Aromatic Hydrocarbons."  
Detroit, Michigan - June, 1994

Mountain West Society of Toxicology, Annual Meeting - Immunotoxicology Symposium Speaker - Potential Role of Altered Calcium Homeostasis in PAH-Induced Lymphocyte Immunotoxicity and Breast Cancer."  
Albuquerque, NM - September, 1994

American Association for Cancer Research Special Symposium - "Transcriptional Control of Cell Growth and Differentiation" - invited participant.  
Chatham, MA - October, 1994

University of Cincinnati, Center for Environmental Genetics, Dept. of Environmental Health - invited seminar speaker - "Potential Role of Altered Calcium-Dependent Cell Signaling in PAH-Induced Immunotoxicity and Breast Cancer"  
Cincinnati, OH - November, 1994

Society of Toxicology, Annual Meeting, invited symposium speaker, "Role of Altered Calcium Homeostasis in the Immunotoxicity of Polycyclic Aromatic Hydrocarbons"  
Baltimore, MD - March, 1995

Calcium Influx Conference invited participant, Asilomar Conference Center  
Monterey, CA - May, 1995

Lovelace Biomedical Research Foundation - "Role of Altered Calcium-Dependent Cell Signaling in PAH-Induced Immunotoxicity and Breast Cancer"  
Albuquerque, NM - January, 1996

The University of Texas at Austin, Dept. of Pharmacology/Toxicology - "Role of Calcium Signaling in PAH-Induced Immunotoxicity and Breast Cancer"  
Austin, TX - September, 1996

**SCIENTIFIC MEETINGS AND INVITED PRESENTATIONS (Con't)**

National Institute of Environmental Health Sciences - Investigator's meeting for funded RFA - "Role of Altered Calcium-Dependent Cell Signaling in PAH-Induced Breast Cancer"  
Research Triangle Park, NC - September, 1996

SOT Annual Meeting, Chair of Workshop and Speaker, "Assessment of Immunotoxicity by Multiparameter Flow Cytometry"  
Cincinnati, OH - March, 1997

12<sup>th</sup> Annual Symposium on Mechanisms of Immunotoxicity: Apoptosis, Invited Speaker, "Polycyclic Aromatic Hydrocarbon-Induced Apoptosis in Murine and Human Cells: Potential Roles of Ca<sup>2+</sup> and Protein Tyrosine Kinase Activation," National Institute of Occupational Health and Safety  
Morgantown, WV - September, 1997

Pacific Northwest Association of Toxicology (SOT Regional Chapter) Annual Meeting, Invited Speaker, "Mechanisms and Potential Significance of Polycyclic Aromatic Hydrocarbon-Induced Calcium Elevation and Protein Tyrosine Kinase Activation in Human Lymphoid and Mammary Epithelial Cells,"  
Ocean Shores, WA - September, 1997

International Life Sciences Institute (ILSI) Workshop on Application of Flow Cytometry to Immunotoxicity Testing; Rapporteur, "Factors Affecting the Usefulness of Flow Cytometry in Immunotoxicity Evaluation"  
Washington, DC - October, 1997

Mountain West Society of Toxicology Platform Speaker "Potential Role(s) of Growth Factor Signaling Pathways in Human Breast Cancer Promotion by Carcinogenic PAHs and TCDD"  
Tucson, AZ - September 18, 1998

University of California at Los Angeles Cancer Center - "Potential Role(s) of Growth Factor Signaling Pathways in Human Breast Cancer Promotion by Carcinogenic Polycyclic Aromatic Hydrocarbons and TCDD"  
Los Angeles, CA - October 12, 1998

University of Colorado School of Pharmacy - "Role of Oxidative PAH metabolites of benzo(a)pyrene in tumor promotion in mammary epithelial cells"  
Denver, CO - February 25, 1999

SOT Annual Meeting, Chair of Workshop and Speaker, "Carcinogenicity of Cigarette Smoke: Bridging the Gap Between Complex Mixtures and Individual Components"  
New Orleans, LA - March 16, 1999

"Use of Flow Cytometry and Biochemical Signaling Pathways to Understand Mechanisms of Human Immunotoxicity and Carcinogenicity."  
U.S. FDA Center for Drug Evaluation and Research (CDER), Office of Testing and Research  
Laurel, MD - August 2, 1999



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38. Burchiel, SW, Hadley, WM, Barton, SL, Fincher, RH, Lauer, L, and Dean, JL. (1988). Persistent immunosuppression of humoral immunity produced by 7,12-dimethylbenz(a)anthracene (DMBA) in B6C3F1 mice: Correlation with changes in spleen cell surface markers detected by flow cytometry. *Int J Immunopharmacol* 10:369-376.
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20. Burchiel, SW, Davis, DP, Ray, SD, Sorge, CL, Archuleta, MM, Thilsted, JP, and Corcoran, GB (1991). DNA fragmentation and cell death induced by DMBA in lymphoid and nonlymphoid organs of B6C3F1 mice. *The Toxicologist* 11:269 (Abstr #1036).
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**ABSTRACTS (Con't)**

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33. Davila, DR, Krieger, JA, Yeh, AA, and Burchiel, SW (1995). Immunotoxicity of polycyclic aromatic hydrocarbons in human peripheral blood lymphocytes: Structure-activity relationships. The Toxicologist 15:38 (Abstr #206).
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38. Zhao, M-F, Born, JL, Lytton, J, and Burchiel, SW (1996). Inhibition of SERCA-type calcium ATPases by polycyclic aromatic hydrocarbons: Initial evidence that inhibition may not be via direct mechanisms. The Toxicologist 30: 322 (Abstr #1654).
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41. Burchiel, SW. Assessment of immunotoxicity by multiparameter flow cytometry. (1997) The Toxicologist 36:107 (Abstr #548).
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43. Salas, VM, Mounho, BJ, Lauer, FT, and Burchiel, SW (1997) .The role of benzo(a)pyrene (BaP) metabolites in apoptotic death in the Daudi human B cell line. The Toxicologist 36:290 (Abstr #1476).
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45. Tannheimer, SL, Ethier, SP, and Burchiel, SW. (1997). Carcinogenic polycyclic aromatic hydrocarbons increase intracellular  $\text{Ca}^{2+}$  and alter growth factor signaling pathways in MCF-10A. Proc of the American Assoc of Cancer Res. 88<sup>th</sup> Annual Mtg, p. 142 (Abstr #947).
46. Salas, VM, and Burchiel, SW (1998). Apoptosis in the Daudi human B cell line in response to benzo(a)pyrene and its metabolites involves a Bcl-2 sensitive pathway. Toxicological Sciences 42:143 (Abstr #704).

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49. Burchiel, SW, and Witschi, HR. Carcinogenicity of cigarette smoke: Bridging the gap between complex mixtures and individual components. *Toxicological Sciences* 48:105 (Abstr #494).
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52. Davis II, JW, Lauer, FT, Hudson, LG, and Burchiel, SW (2000) 2,3,7,8-tertrachlorodibenzo-*p*-dioxin (TCDD) inhibits apoptosis in MCF-10A human mammary epithelial cells by an epidermal growth factor (EGF) pathway: Evidence for an aryl hydrocarbon receptor (AhR)-dependent mechanism. *Keystone Symposium on Joint Regulation of Signaling Pathways by Integrins and Growth Factors*, p. 107.
53. Davis II, JW, Lauer, FT, Hudson, LG, and Burchiel, SW (2000) 2,3,7,8-tertrachlorodibenzo-*p*-dioxin (TCDD)-mediated inhibition of apoptosis in the MCF-10A human mammary epithelial cell line is dependent on epidermal growth factor receptor (EGFR) activity. *Proceedings of American Association for Cancer Research 2000 Annual Meeting*, p. 406 (Abstr #2579).

**PATENTS**

1. Burchiel SW, Rhodes BA, Crockford DR. Radiolabeled Antibody to Anti-Tumor Associated Antigen and Process. U.S. Patent No. 4,472,371. September 18, 1984.
2. Burchiel SW, Rhodes BA, Crockford DR. Composition and Method For Detecting Cancer With Technetium Labeled Antibody Fragments. U.S. Patent No. 4,478,815. October 23, 1984.

**FUNDED GRANTS AND CONTRACTS**

Program Coordinator for the Pharmacology of Drug Abuse: \$4,500 received from the Burroughs-Wellcome Foundation, Hoffman-La Roche Foundation, G.D. Searle, and Endo Pharmaceuticals (1977).

Program Coordinator for the Pharmacology of Drug Abuse: \$1,000 received from Hoffman-La Roche Foundation (1978).

Public Health Service Postdoctoral fellowship received from National Cancer Institute, \$10,800 per year (1978).

Co-Principal Investigator for the Radioimmunochemical Detection of Cancer, a contract made to the University of New Mexico by Nuc-Med, Inc., and Serono Laboratories, Inc., \$301,000 (January 1, 1978 - June 30, 1981).

Principal Investigator of "Quantitation of Beta-Adrenergic and Histamine Receptors on Lymphoid Cells, NIH-BRSG (S07-RR07185-01) \$5,400 (1980).

Principal Investigator for Basic Research in Immunology, a contract with Nuc-Med, Inc. (Summa Medical Corporation) in the amount of \$77,000 (July 1, 1981 - June 30, 1982).

Principal Investigator on "Immunotoxicology of Heavy Metals," a grant from the UNM Research Allocations Committee, September, 1982, in the amount of \$1,700.

Senior Scientist on "Radioimmunoamplification Reactions in *In Vivo* Tumor Imaging." (Buck Rhodes, P.I.) National Institute of Health, Small Business Innovative Research (SBIR) Program, February, 1984 - August 1984, in the amount of \$35,000.

Principal Investigator on "Pharmacokinetic Evaluation of Radiolabeled Antibodies in Rhesus Monkeys," a grant from the UNM Research Allocations Committee, July, 1983, \$3,000.

Principal Investigator on "Oral Toxicity of Thuricide and Dipel in Sheep: A Five-Month Infectivity Study," - a contract with Sandoz, Preclinical Safety Assessment, September 1983, \$125,840.

Principal Investigator on "Multiparameter Analysis of Immunotoxicity by Flow Cytometry," NIH Grant No. RO1-ES03485 July 1, 1984 - June 30, 1987, \$241,415.

Principal Investigator on "Pharmacokinetic Analysis of Tc-99m-Metallothionein Labeled Monoclonal Antibodies in Normal Rhesus Monkeys," - a contract with E.I. du Pont de Nemours, Immunopharmaceutical R & D, March, 1985, \$24,996.

Principal Investigator on "Immunologic Evaluation of Human CHO Cell-derived rGM-CSF in Normal Rhesus Monkeys," - a contract with Sandoz, Preclinical Safety Assessment, October, 1985, \$20,258.

Principal Investigator on "Evaluation of Isoxicam Hypersensitivity in Normal Non-Human Primates" - a grant from Warner-Lambert/Parke-Davis, Pathology and Toxicology Division, April, 1986, \$15,000.

Principal Investigator on "Evaluation of Immunogenicity of Human rDNA-derived GM-CSF Obtained from E. Coli" - a contract with Sandoz, Preclinical Safety Assessment, September, 1986, \$21,756.

**FUNDED GRANTS AND CONTRACTS (Con't)**

Principal Investigator on "Evaluation of Immunogenicity of B72.3-MT in Rhesus Monkeys" - a contract with E.I. du Pont de Nemours, Immunopharmaceutical R&D, January, 1987, \$4,400.

Principal Investigator on "Evaluation of Human Prourokinase Plasma Levels in Patients Undergoing Thrombolytic Therapy" - a contract with Sandoz, Clinical Research, March, 1987, \$26,361.

Principal Investigator on "Evaluation of Immunogenicity of Monoclonal Antibodies in Rhesus Monkeys" - a contract with Sandoz, Preclinical Safety Assessment, April, 1987, \$24,873.

Principal Investigator on "Evaluation of Immunogenicity of Human rDNA-derived GM-CSF Given Subcutaneously to Rhesus Monkeys" - a contract with Sandoz, Preclinical Safety Assessment, July, 1987, \$17,847.

Principal Investigator on "Evaluation of Immunogenicity of Human rDNA-derived GM-CSF in AIDS, Cancer, and Aplastic Patients - a contract with Sandoz, Clinical Research, July, 1987, \$30,993.

Principal Investigator on "Biodistribution and Pharmacokinetic Analysis of CHO Cell-Derived rHuGM-CSF in Rhesus Monkeys" - a grant from the Sandoz Research Institute, January, 1988, \$118,104.

Investigator, NIH Shared Instrumentation Grant (Dr. J. Oliver)-Purchase of Coulter Epics 753 multilaser flow cytometer, MDADS II Computer system, and DEC MicroVax Workstation, 1/88 to 1/89, \$350,000.

Principal Investigator on "Analysis of Circulating rHuGM-CSF in the Plasma of Patients Receiving CHO Cell-Derived rHuGM-CSF for Immunotherapy" - a contract with the Sandoz Research Institute, January, 1988, \$118,373.

Principal Investigator on "Analysis of Immunogenicity of rDNA-Derived Human rIL-3 in the Rhesus Monkey" - a contract with the Sandoz Research Institute, January, 1988, \$18,111.

Principal Investigator on "Immunogenicity of E. Coli-derived Human rHuIL-3 in the Rhesus Monkey" - a contract with the Sandoz Research Institute, April, 1988, \$29,563.

Principal Investigator on "Immunogenicity of Human Monoclonal Anti-Hepatitis in the Rhesus Monkey" - a contract with the Sandoz Research Institute, September, 1988, \$30,355.

Principal Investigator on "Comparative Immunogenicity of rHuGM-CSF (Sandoz 89-107 and Schering 39300) in the Rhesus Monkey" - a contract from the Sandoz Research Institute, September, 1988, \$31,429.

Principal Investigator on "Immunogenicity of E. Coli-derived Human CHO and E.Coli rHuIL-3 in the Rhesus Monkey" - a contract with the Sandoz Research Institute, October, 1988, \$16,415.

Principal Investigator on "Immunogenicity of Human rHuIL-3 in the Rhesus Monkey" - a contract with the Sandoz Research Institute, February, 1989, \$33,552.

Principal Investigator on "Measurement of Antibodies to rHuIL-3 in the Rhesus Monkey Plasma" - a contract with the Sandoz Research Institute, March, 1989, \$65,907.

**FUNDED GRANTS AND CONTRACTS (Con't)**

Principal Investigator on "Immunology Support for Human rHuIL-3 Clinical Studies- a contract with the Sandoz Research Institute, April, 1990, \$88,216.

Principal Investigator on "Comparative Immunogenicity of rHuIL-3 in the Rhesus Monkey" - a contract with the Sandoz Research Institute, May, 1990, \$35,220.

Principal Investigator on "Immunogenicity of Human Monoclonal Antibodies to Herpes Virus (HSV-863) in the Rhesus Monkey" -a contract with the Sandoz Research Institute, August, 1990, \$21,325.

Sponsor for Dr. D.P. Davis (PI) "Mechanisms of dimethylbenz(a)anthracene Immunotoxicity" NIH NRSA Postdoctoral Research Fellowship 1F32-ES 08334, 6/1/90 to 5/31/92, \$49,000, and competitive renewal 6/1/92-5/30/93, \$31,000.

Investigator, NIH Shared Instrumentation Grant (Dr. J. Raucy, PI), Purchase of molecular biology instrumentation (PCR Synthesizer, centrifuge, and Savant vacuum centrifuge), 9/1/90 to 8/31/91, \$19,980.

Principal Investigator on "Immunogenicity of rHuIL-6 in the Rhesus Monkey" - a contract with the Sandoz Research Institute, 11/90 to 3/91, \$29,004.

Principal Investigator on "Immunology support for preclinical and clinical studies with biotechnology products," - a contract with the Sandoz Research Institute, 6/91 to 6/92, \$117,315.

Principal Investigator on "Graduate stipend support for Wenjie Yuan" - a grant from the Sandoz Research Institute, 6/92 to 12/92, \$15,000.

Principal Investigator on "Immunotoxicity of polycyclic aromatic hydrocarbons", Grant No. 1RO1 ES-05495 from the National Institutes of Health , July 1, 1992 - June 30, 1997, \$693,154.

Principal Investigator on "Immunotoxicity of polycyclic aromatic hydrocarbons" Supplement , NIH Grant No. 1RO1 ES-05495S1, December 1, 1993 - June 30, 1997, \$126,691.

Principal Investigator on "Immunotoxicity of polycyclic aromatic hydrocarbons" Minority Research Supplement , NIH Grant No. 1RO1 ES-05495, July 1, 1994 - June 30, 1997, \$85,858.

Principal Investigator on "Mammary cell signaling produced by environmental agents" - response to NIEHS RFA No. 94-004 entitled 1RO1 ES-07259, "Timing of Environmental Exposures in Breast Cancer", \$825,434, September 30, 1994 - September 29, 1999.

Principal Investigator on "Mammary cell signaling produced by environmental agents" - Administrative supplement to 1RO1 ES-07259, \$50,000.

Principal Investigator on "Measurement of Antibodies to BIRR-10 in Rhesus Monkey Serum - Project 50027-01" - a contract with Boehringer-Ingelheim Pharmaceuticals, Inc. July, 1995, \$51,907.

Principal Investigator on "Measurement of Antibodies to BIRR-10 in Rhesus Monkey Serum - Project 50027-02" - a contract with Boehringer-Ingelheim Pharmaceuticals, Inc. January, 1996, \$51,470.

**FUNDED GRANTS AND CONTRACTS (Con't)**

Principal Investigator on "Measurement of Antibodies to BIRR-10 in Rhesus Monkey Serum -Project 96-R018" with Boehringer-Ingelheim Pharmaceuticals, Inc. August, 1996, \$57,895.

Principal Investigator on "Measurement of Antibodies to BIRR-4 in Rhesus Monkey Serum -Project 96-R003" - a contract with Boehringer-Ingelheim Pharmaceuticals, Inc. December, 1996, \$46,728.

Principal Investigator on "Measurement of Antibodies to BIRR-4 in Rhesus Monkey Serum Project 97-R005" - a contract with Boehringer-Ingelheim Pharmaceuticals, Inc. March, 1997 \$35,590.

Principal Investigator on "Immunotoxicity of polycyclic aromatic hydrocarbons", Grant No. 1RO1 ES-05495-06 from the National Institutes of Health, July 1, 1997 - June 30, 2002, \$1,625,409.

Co-Principal Investigator (with Pope Moseley, MD) on "Environmental Respiratory Diseases in Native Americans", NIEHS Developmental Center Grant, P20 ES09871; April 1, 1999 – March 31, 2003, \$1,353,388.

Post Doctoral Mentor for John Davis, Ph.D. – NRSA Post Doctoral Research Fellowship Grant F32 ES-05895 "TCDD-Mediated Growth Regulation in Mammary Cells", 10-01-99 to 9-30-02, \$127, 196.

**PENDING GRANTS**

Principal Investigator on "Mammary cell signaling produced by environmental agents" - 2 RO1 ES-07259-05, \$1,470,000 total costs, April 1, 2001- March 31, 2005.

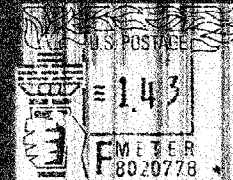
**CONSULTANCIES**

Dow Diagnostics, Inc., Indianapolis, IN (11/79)  
Summa Medical Corporation, Albuquerque, NM (1979-1983)  
Nuclear Pharmacy, Inc., Albuquerque, NM (1979-1981)  
Wampole Laboratories, Inc., Cranbury, NJ (3/82)  
BTC Diagnostics, Inc., Cambridge, MA (6/83)  
Sandoz Research Institute, East Hanover, NJ (11/85 to 6/92)  
E. I. du Pont de Nemours, Immunopharmaceutical R&D, North Billerica, MA (11/85 to 12/88)  
Warner-Lambert/Parke-Davis, Experimental Pathology and Toxicology, Ann Arbor, MI (3/86 to 3/87)  
Cetus (Chiron) Corporation, Preclinical Assessment, Berkeley, CA (3/86 and 7/90 to 6/92)  
Triton Biosciences, Inc., Preclinical Safety, Alameda, CA (3/86 to 6/88)  
Genentech, Inc., South San Francisco, CA (6/90 to 12/91)  
Dow-Corning Corporation (10/93 to 5/95)  
Dow Chemical Company (5/95-date)  
Boehringer-Ingelheim Pharmaceuticals, PreClinical Safety (6/95-date)  
Lovelace Respiratory Research Institute (1998-date)  
Williams Field Services (1999-2000)  
Becton Dickinson (8/99-date)



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